Testimony on:

Rethinking the Federal Reserve's Many Mandates on Its 100-Year Anniversary

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Chairman Hensarling, Ranking Member Waters, and members of the committee, thank you for the privilege of appearing to testify here today. In this, the centennial of the Federal Reserve (the "Fed"), I commend the committee for holding this hearing.

In my remarks today, I hope to make three main points:

- The fundamentals of financial economics dictate multiple roles for a policy body such as the Federal Reserve;

- Corresponding to these policy imperatives are explicit or implicit mandates for the Fed; and

- The exercise of multiple mandates may raise the possibility of diminished performance on any single mandate, such as macroprudential regulation, and leave behind legacy costs like the Fed's expanded balance sheet.

I will now discuss these topics in greater detail.

The appropriate roles for the Federal Reserve have been increasingly debated in recent years. As Martin Feldstein noted in his 2010 essay:

> *The recent financial crisis, the widespread losses of personal wealth, and the severe economic downturn have raised questions about the appropriate powers of the Federal Reserve and about its ability to exercise those powers effectively. As possible changes are contemplated, it is reasonable to ask what powers should reside with the Federal Reserve, what powers might be given to other government entities, and what actions should be left to free financial markets.*[1]

He then argues that the core functions of the Fed include:

- monetary policy;
- the lender of last resort;
- bank holding company supervision (microprudential regulation); and

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[1] Martin Feldstein, "What Powers for the Federal Reserve?" *Journal of Economic Literature*, Vol. 48, Iss. 1, March 2010.

- systemic risk management (macroprudential regulation).[2]

In practice, the Fed also conducts consumer financial product regulation, and the collection and promulgation of macroeconomic data. Clearly, there is no shortage of explicit or implicit roles for the Fed.

The primary mandate of the Fed is to conduct monetary policy. The structure and conduct of fulfilling this mandate in areas such as rules versus discretion, inflation rules versus dual foci on employment and inflation, and other issues have been widely debated. Accordingly, this testimony will eschew discussion of the formal monetary policy role in order to focus on other issues.

Background on the Economics of Finance

Maturity Mismatch

The fundamental nature of banking leaves it open to the potential for market failure, in which the financial intermediation function of banks can unwind due to externality effects and contagion.[3] Put another way, "banks are inherently illiquid institutions, taking deposits that the public can access on demand, and lending those funds to businesses that have much longer times to repay."[4] The provision of liquidity through deposits is welfare-enhancing, but subject to multiple equilibria including bank runs. As a response to this problem and the wave of bank runs and failures in the early 1930s, the United States established deposit insurance.

Although debate still exists about the necessity of deposit insurance,[5] this insurance scheme has been a bedrock principle of America's modern commercial banking system since it's creation, expanding in scope and size in the interim. Although deposit insurance

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[2] *Ibid*. See also Thomas C. Baxter, Jr., "From Bagehot to Bernanke and Draghi: Emergency Liquidity, Macroprudential Supervision and the Rediscovery of the Lender of Last Resort Function," Remarks at the Committee on International Monetary Law of the International Law Association Meeting, Madrid, Spain, September 19, 2013.

[3] Douglas W. Diamond and Philip H. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity," *Journal of Political Economy*, Vol. 91, No. 3, June 1983.

[4] *Supra*, note 1.

[5] See for example, Charles Calomiris, "Is Deposit Insurance Necessary? A Historical Perspective," *Journal of Economic History*, Vol. 50, No. 2, June 1990.

mitigates one major problem, it can create others.[6] As is endemic to insurance (especially public insurance schemes), deposit insurance can induce moral hazard problems. Proper structure and pricing can eliminate or at least minimize this problem, but as the Savings & Loan crisis exposed, insurance can interact with other regulatory realities in such a way that it can have major deleterious effects on the savings institutions themselves, but also spread to the larger real economy. Thus, deposit insurance (or more broadly protection of short-term creditors) must be paired with rigorous and proper supervision of banking activities.

What happened in the most recent crisis was analogous to the phenomena of nervous depositors lining up outside their bank – leading depositors at neighboring banks to worry about the safety of their own deposits. While deposit insurance is meant to reassure depositors of the safety of their funds (of up to $100,000, raised to $250,000 during the crisis), no such insurance exists for other types of funding – although there exists many types of funding which look and act very much like the typical household deposit. Moreover, household deposits have been a decreasing share of bank funding.

Banks increasingly sought and dealt in short-term funding from other banks, commercial paper and money markets, and from nonbank financial sources. Although very different in many ways, these types of funding were still subject to the maturity mismatch problem in which short-term funds were used to finance longer-term loans and investments. Collateralization, credit ratings, derivatives, and other methods were used as means to get around the mismatch problem, but ultimately they proved insufficient in the face of a systemic crisis. What resulted was a version of the classic depositor panic, but instead of individuals lining up to withdraw their funds, we got what one observer referred to as a "21st-century bank run."[7]

Amplification

The most recent crisis began with an asset class amounting to, by one measure, about $300 billion.[8] And yet the impact was far, far larger. The reason is the amplification of shocks owing to the overlapping nature of financial relationships and leverage, which create negative feedback loops. Amplification of financial shocks can occur via several different channels.

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[6] Kenneth E. Scott and Thomas Mayer, "Risk and Regulation in Banking: Some Proposals for Federal Deposit Insurance Reform," *Stanford Law Review*, Vol. 23, No. 5, May 1971.

[7] Arnold Kling, *Not What They Had in Mind: A History of Policies that Produced the Financial Crisis of 2008*, Arlington, VA: Mercatus Center at George Mason University, 2009.

[8] International Monetary Fund, "Global Financial Stability Report," April 2008.

One major channel is the balance-sheet mechanism, which has been implicated in major recent crises including that associated with Long-Term Capital Management and the 1987 crash, as well as the most recent financial crisis.[9] In this mechanism, "an initial shock tightens funding constraints, causing the net worth of institutions to decrease and funding conditions to tighten further."[10] The net worth effect follows from tightening conditions because of the necessity of "higher margins, lower collateral value, lower asset market prices, and higher volatility."[11] It's important to point out here, that although the triggering event(s) may be rooted in changing perceptions of credit quality (e.g., subprime mortgage-backed securities), this amplification mechanism stems from increasing demand for liquidity (increase in liquidity premium). In other words, this mechanism by which the triggering event ripples throughout the system is of a liquidity nature, and not a credit one. This distinction is important in constructing the appropriate policy response.[12]

Another means of amplification is adverse selection. As institutions holding longer-term assets are forced to sell into a declining market in response to a major shock, potential buyers are unable to determine whether the assets for sale are otherwise high quality but available simply to satisfy liquidity demands, or whether they are in fact of low quality (or lower than average).[13] This of course is a classic example of the "lemons" problem resulting from asymmetric information.[14] Recent research has reinforced the role of the adverse selection mechanism in the recent financial crisis, pointing to even small cracks

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[9] Ben Bernanke, "The Crisis and the Policy Response," Stamp Lecture, London School of Economics, London, England, January 13, 2009.

[10] Asani Sarker and Jeffrey Shrader, "Financial Amplification Mechanisms and the Federal Reserve's Supply of Liquidity During the Financial Crisis," *FRBNY Economic Policy Review*, August 2010.

[11] *Ibid*.

[12] Here, the controversy surrounding mark-to-market accounting rules, and the procyclicality thereof is relevant. This may be a corollary which further amplifies the balance sheet mechanism. See Guillaume Plantin, Haresh Sapra, and Hyun Song Shin, "Fair Value Accounting and Financial Stability," *Financial Stability* Review, Banque de France, No. 12, October 2008.

[13] Koralai Kirabaeva, "Adverse Selection, Liquidity, and Market Breakdown," Bank of Canada Working Paper series, 10-32, August 2010.

[14] George Akerlof, "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *The Quarterly Journal of Economics*, Vol. 84, No. 3, 1970.

in "market confidence" which can then blossom into a complete breakdown in the entire market for certain assets (so-called "toxic assets").[15] In contrast to the balance sheet mechanism, this amplification mechanism is effectively one of a credit nature. Although liquidity concerns could be the cause of the initial shock, the increase in uncertainty surrounding the payoffs of a security owing to adverse selection effects – even a security that is *ex post* high quality – means a lower risk-adjusted return (i.e., the effective *ex ante* credit quality of the security or class of securities).

Other amplification mechanisms no doubt also occur, and further may be *sui generis* to specific market and asset types.[16]

Bubbles and Crashes

Asset bubbles and attendant crashes may be difficult, indeed impossible, to predict with any confidence.[17] As such their occurrence can be fairly disruptive to financial markets. A sudden crash in an asset price (even a narrow asset class) can be the precipitating shock from which larger crises emanate.

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[15] Stephen Morris and Hyun Song Shin, "Contagious Adverse Selection," *American Economic Journal: Macroeconomics*, Vol. 4, No. 1, January 2012. Asymmetric information leading to increases in variance in the payoff distribution for a given security (or security type) is one specific mechanism in which this adverse selection can happen. See Daniel O. Beltran and Charles P. Thomas, "Could Asymmetric Information Alone Have Caused the Collapse of Private-Label Securitization?" Board of Governors of the Federal Reserve System, International Finance Discussion Papers No. 1010, October 2010. A more generalized model of breakdown in trading can be found in Utpal Bhattacharya and Matthew Spiegel, "Insiders, Outsiders, and Market Breakdowns," *The Review of Financial Studies*, Vol. 4, No. 2, 1991.

[16] One study distinguishes the Knightian uncertainty mechanism which ultimately leads investors to disengage in untested or new markets. See Arvind Krishnamurthy, "Amplification Mechanisms n Liquidity Crises," *American Economic Journal: Macroeconomics*, Vol. 2, Iss. 3, July 2010.

[17] Of course, as demonstrated by the selection of the most recent winners of the Nobel Prize in Economics, there are various strains of thinking on this issue. The Eugene Fama strain does not preclude the possibility of wild swings in asset prices, but rather insists they are unpredictable (beyond "random walk" processes) and are not the result of irrational deviations from expectations. The Robert Shiller strain differs very much: bubbles can (sometimes) be predicted because they result from behavioral biases of market participants.

Unfortunately asset price bubbles are an unavoidable part of market systems.[18] Even in economic experiments involving experienced traders and known payoffs, price bubbles occur (prices diverge from rational expectations).[19] Nonetheless, as one canonical study points out, central bank policy should not be dependent on such changes in asset prices. To wit, "once the predictive content of asset prices for inflation has been accounted for, there should be no additional response of monetary policy to asset-price fluctuations."[20] Thus, the Fed, if properly bound by this rule, must take a somewhat passive role with respect to swings in the market. That is, the Fed should not look to "prick" bubbles as they occur (even assuming such proper identification is possible).[21]

Policy Mandates for the Federal Reserve

Lender of Last Resort

The central role of liquidity in financial market crises outlined above leads directly to a role as lender of last resort (LOLR). In the recent crisis, the Federal Reserve exercised the traditional central bank role of acting as a LOLR. "By providing a liquidity backstop, central banks" can help to avoid or limit the asset fire sales which can occur following tightening conditions in the short-term funding market.[22]

Unfortunately the complexity and evolving nature of the liquidity needs of the financial system made satisfying that role less straightforward than in other times, requiring a dynamic response. In the most recent crisis, the earliest programs were the most

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[18] There are at least four categories of models which "can explain crashes even when all agents act rationally." See Markus K. Brunnermeier, *Asset Pricing Under Asymmetric Information: Bubbles, Crashes, Technical Analysis, and Herding*, Oxford University Press, 2001, at chapter 6.

[19] Vernon L. Smith, Gerry L. Suchanek, and Arlington W. Williams, "Bubbles, Crashes, and Endogenous Expectations in Experimental Spot Asset Markets," *Econometrica*, Vol. 56, No. 5, September 1988.

[20] Ben S. Bernanke and Mark Gertler, "Should Central Banks Respond to Movements in Asset Prices?" *The American Economic Review*, Vol. 91, No. 2, May 2001. This view is not unanimous, however. See Nouriel Roubini, "Why Central Banks Should Burst Bubbles," *International Finance*, Vol. 9, Iss. 1, Spring 2006.

[21] This dictum is discrete. It is separate from the *ex ante* role Fed policy may or may not have had in creating asset price bubbles. See for example, Lawrence H. White, "Federal Reserve Policy and the Housing Bubble," *Cato Journal*, Vol. 29, No. 1, Winter 2009.

[22] *Supra*, note 9.

straightforward application of LOLR roles.[23] Indeed, "the externalities of liquidity demand, with potential negative outcomes of credit cycles, bank runs, and financial crises….[have] been the main focus of the Federal Reserve since its founding."[24] The Term Auction Facility, central bank liquidity swaps, Term Securities Lending Facility, and Primary Dealer Credit Facility, in addition to the preexisting discount window facility all aimed to loosen short-term funding pressures (although their use may have been novel). Moreover, they did so specifically with the aim of stopping balance sheet amplification feedback from getting much worse – via these facilities, the Fed did not take on credit risk, but rather applied its lower required liquidity premium to provide short-term, collateralized funds to institutions in need of liquidity, who were otherwise unable to be serviced by the private market without substantial haircuts.

The discount window is of course a longstanding funding facility. It is very much the prototypical "last resort" lending option, self-limited in two ways. First, the cost of such funding, relative to conventional sources during normal times, is usually higher. Second, and perhaps more importantly, use of the discount window carries with it a stigma.[25] If known, use of the discount window by an institution would signal some financial distress or risk of insolvency to other market participants, which may further exacerbate liquidity shortfalls. The incredibly tight short-term funding conditions of the early crisis, the expanded list of eligible collateral and institutions, a declining discount rate, maturity extension, and use of auctions are several of the factors which ought to have encouraged use of the discount window.[26] And yet there is evidence that borrowers paid a premium to use alternative facilities to avoid the associated stigma.[27]

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[23] John Cassidy, "Interview with John Cochrane," Rational Irrationality, *The New Yorker*, January 13, 2010.

[24] Gary B. Gorton and Andrew Metrick, "The Federal Reserve and Financial Regulation: The First Hundred Years," Working Paper 19292, NBER, August 2013.

[25] See, for example, Daniel L. Thornton, "Walter Bagehot, the Discount Window, and TAF," *Economic Synposes* No. 27, Federal Reserve Bank of St. Louis, October 28, 2008; and Oliver Armantier, et. al., "Stigma in Financial Markets: Evidence from Liquidity Auctions and Discount Window Borrowing during the Crisis," Staff Report no. 483, Federal Reserve Bank of New York, January 2011.

[26] Satya Thallam, "The Federal Reserve's Crisis Response," American Action Forum, September 12, 2013.

[27] This amounted to a premium of 37-150 basis points. Supra, note 24. There is also possibility of a "moral suasion" effect.

The Term Auction Facility (TAF), instituted in December 2007, was a way around the stigma effect of the discount window: funds were allocated entirely through auctions and maturities were in the one-to-three month range. Ultimately more than twice as many institutions participated in TAF than the discount window.[28] The Term Securities Lending and Primary Dealer Credit Facilities were also of this type of program—transferring little to no credit risk to the Fed, but applying the central bank's lower liquidity premium to stretch out short-term funding maturities and ultimately halt balance sheet amplification effects following the crash in housing and housing-related securities.

Limited to the scope of true "lender of last resort" programs, it should be noted that none of the loans in question defaulted. Moreover, evidence indicates that the programs were successful in reducing the benchmark funding spreads.[29]

> *Exceptions*
> The Federal Reserve's crisis response was not all extension or creative application of traditional roles. Maiden Lane (April 2008), Maiden Lane II/III (September 2008), Bank of America/Merrill Lynch (January 2009), and Citigroup (November 2009) were all departures from general liquidity and credit market support. Instead, therein, the Federal Reserve (mostly in support of the Treasury Department) extended guarantees, risk-sharing, liquidity, and capital in support of specific institutions or transactions in an attempt to ring fence financial disturbances.[30]
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> While in some cases, the credit terms extended under these programs ultimately went unexercised, and in others the Fed did not assume any credit risk, these types of transactions are problematic. They open the door to an expanding window of *ad hoc* and discretionary policy choices – choices which are increasingly tailored to specific institutions and not markets. The Dodd-Frank Act changed the 13(3) authority in the Federal Reserve Act to disallow transactions such as these in the future.[31]
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> Problems arising from funding needs related to a single institution, whether because of counterparty concerns or fear of a disruptive failure, are the primary concerns of macroprudential regulation (married to microprudential regulation to

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[28] *Supra*, note 25.

[29] *Supra*, note 9.

[30] *Supra*, note 25. The Maiden Lane transactions refer to programs to support or expedite takeover of Bear Stearns (to JP Morgan) and AIG (to the Treasury Department)

[31] *Supra*, note 2.

address specific institutional concerns). That is, systemic risk regulations should be focused on preventing the need for institution-specific actions. This should be coupled with a credible path toward reorganization or liquidation through bankruptcy (or bankruptcy-like) procedures. But of course expectations matter: the change in statute should go a long way in decreasing expectations of extraordinary containment measures via individual institutions.

Costs of Monetary and LOLR Mandates

The LOLR and monetary policy functions have greatly expanded the Fed's balance sheet. The quantitative easing programs undertaken recently have resulted in multi-trillion dollar increases in assumed assets and over a trillion dollars in excess reserves. This expanded balance sheet is a substantial increase in exposure: credit risk, interest rate risk, and risk of inflationary effects from unwinding should all be concerns of policymakers. Moreover, on the second concern (interest rate risk), the actual incidence of this risk is dependent on future Fed policy – the risk is therefore compounded by the possibility that balance sheet exposure will constrain future policy. One way to avoid the assumption of these risks in the future would be to require "Congressional authoriz[ation of] Treasury funding of longer-term private credit provisions."[32]

Supervision as Part of Microprudential and Macroprudential Risk Management

The Federal Reserve was not the only central bank or central financial regulator to miss brewing problems, either within the US or abroad. Indeed, the global nature of the crisis that ensued after early market disruptions is evidence that the Fed is not especially culpable for the crisis.

Nevertheless, it is possible there are problems in the Fed's supervisory program. Prior to the crisis, the Fed relied on a fairly explicit and rigorous system of ratings referred to as CAMELs. However, this system did not explicitly account for systemic or other macroprudential risks. Moreover it did not give adequate consideration to the actual range of risks associated with certain assets (especially mortgage-backed securities), in large part owing to a regime promulgated under the Basel II rules.

The microprudential supervision regime has meaningful implications across several dimensions. Of course it goes to the heart of an individual institution's financial health. But more than that, it is the means by which the rules of the road are internalized into management and within the company. Explicit rules are written and promulgated outside this process, but their enforcement via other channels can occur with a lag and without teeth. Supervision is the means by which "the rubber hits the road."

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[32] *Supra*, note 1.

Additionally, it is the channel whereby analysts can identify systemic concerns that would be opaque to broader sector-wide data or analysis. That is, micro- and macroprudential concerns are not distinct but necessarily intertwined. For example, divestiture of problematic counterparty relationships could be identified in this channel. Moreover, while clear and stable capital requirements are necessary, it's more likely that microprudential supervisors would identify the likely problem with certain asset classes that are otherwise hidden by overall compliance with the prevailing capital regime. To wit, the capital regulation regime in place pre-crisis allowed residential mortgage debt to "hide in plain sight" by being given a lower risk-weighting than other assets which *ex post* turned out to much less risky.[33]

Thank you and I look forward to answering your questions.

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[33] *Ibid*.